

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

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PCT

WRITTEN OPINION

(PCT-Ar. 66) **DOCKETED**

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22 AUG 2003

Applicant's or agent's file reference
80004/83-WO

REPLY DUE within TWO months
from the above date of mailing

International application No.
PCT/US02/39619

International filing date (day/month/year)
11 DECEMBER 2002

Priority date (day/month/year)
NONE

International Patent Classification (IPC) or both national classification and IPC
IPC(7): C06K 9/00
and US Cl.: 382/115,100,118,116,117; 348/169,170,171,172

Applicant
NIELSEN MEDIA RESEARCH, INC

1. This written opinion is the first (first, etc.) drawn by this International Preliminary Examining Authority.

2. This opinion contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.9(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

3. The applicant is hereby invited to reply to this opinion.

- When? See the time limit indicated above. ~~The applicant may, before the expiration of that time limit, request this Authority to grant an extension; see Rule 66.9(d).~~
- How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.8. For the form and the language of the amendments, see Rules 66.8 and 66.9.
- Also For an additional opportunity to submit amendments, see Rule 66.4. For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis. For an informal communication with the examiner, see Rule 66.6.
- If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.9 is: 11 APRIL 2005

Name and mailing address of the IPEA/US
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International application No.

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I. Basis of the opinion

1. With regard to the elements of the international application:*

- ☒ the international application as originally filed
the description:
☒ pages 1-40 _____, as originally filed
pages NONE _____, filed with the demand
pages NONE _____, filed with the letter of _____
- ☒ the claims:
pages 41-48 _____, as originally filed
pages NONE _____, as amended (together with any statement) under Article 19
pages NONE _____, filed with the demand
pages NONE _____, filed with the letter of _____
- ☒ the drawings:
pages 1-16 _____, as originally filed
pages NONE _____, filed with the demand
pages NONE _____, filed with the letter of _____
- ☒ the sequence listing part of the description:
pages NONE _____, as originally filed
pages NONE _____, filed with the demand
pages NONE _____, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the written opinion was drawn on the basis of the sequence listing:

- ☐ contained in the international application in printed form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

- ☒ the description, pages NONE
☒ the claims, Nos. NONE
☒ the drawings, sheets/fig. NONE

5. ☐ This opinion has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed".

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V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. statement

Novelty (N)

Claims 8-53 YES

Claims 1-7 NO

Inventive Step (IS)

Claims NONE YES

Claims 1-53 NO

Industrial Applicability (IA)

Claims 1-53 YES

Claims NONE NO

2. citations and explanations

(See Supplemental Sheet.)

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Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

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TIME LIMIT:

The time limit set for response to a Written Opinion may not be extended. 37 CFR 1.484(d). Any response received after the expiration of the time limit set in the Written Opinion will not be considered in preparing the International Preliminary Examination Report.

V. 2. REASONED STATEMENTS - CITATIONS AND EXPLANATIONS (Continued):

Claim 1-7, lack novelty under PCT Article 33(2) as being anticipated by Lu et al (U.S. 5,550,928).

Regarding claim 1, Lu et al disclose an apparatus to count people in an image comprising: a motion detector to compare at least two images to detect motion occurring; between the at least two images to develop a difference image; a shape outlier to draw at least one shape based on the difference image; and a blob discriminator to determine if the at least one shape represents a person (column 8, lines 54-64, a video equipment module having a window for monitored viewing area).

Regarding claim 2, Lu et al disclose an apparatus as defined in claim 1 wherein the motion detector compares at least three images to develop at least two difference images (column 17, lines 23-31, number of images).

Regarding claim 3, Lu et al disclose an apparatus as defined in claim 2 further comprising an image amalgamator to develop an amalgamated image from the at least two difference images (column 10, lines 8-24, refer to motion detector).

Regarding claim 4, Lu et al disclose an apparatus as defined in claim 3 wherein the shape outlier draws the at least one shape by joining all points within the amalgamated image that satisfy a predetermined constraint into the at least one shape (column 19, lines 40-51, body shape).

Regarding claim 5, Lu et al disclose a method as defined in claim 4 wherein the predetermined constraint requires a distance between all points in the at least one shape to be less than a predetermined distance (column 21, lines 41-50, refer to Euclidean distance).

Regarding claim 6, Lu et al disclose an apparatus as defined in claim 1 further comprising a nonhuman filter to eliminate a non-human shape from the at least one shape (Fig. 5, item 110, object motion).

With regard to claim 7, the arguments analogous to those presented for claims above are applicable.

Claims 8-33, lack an inventive step under PCT Article 33(3) as being obvious over Lu et al (U.S. 5,550,928) in view of Boyette (U.S. 5,097,328).

Regarding claim 8, Lu et al disclose an apparatus as defined in claim 1 wherein the blob discriminator comprises: a center locator to identify a center of the at least one shape; a center comparator to add a symbol representative of the center of the at least one shape to a histogram; and a threshold counter to count symbols in the histogram exceeding a predetermined threshold (column 12, lines 3-13, refer to threshold).

However Lu et al does not explicitly state, "histogram". On the other hand Boyette teaches (column 18, lines 5-19, to generate a histogram of on-duty tellers versus time for each day of the week).

Therefore it would have been obvious to person of ordinary skill in the art at the time the invention was made to modify Lu et al invention according to the teaching of Boyette, because it utilized comparing an element's brightness or other characteristic with set value. And provide determination as to whether they match based on threshold.

Regarding claim 10, Lu et al disclose an apparatus as defined in claim 8 further comprising an energy detector to compare a value indicative of the motion occurring between the two images to an energy threshold, and to cause the threshold counter to count the symbols in the histogram exceeding the predetermined threshold if the value exceeds the energy threshold (column 22, lines 1-11, predetermined threshold).

Regarding claim 13, Lu et al disclose a method as defined in claim 12 wherein determining at least one difference image between at least two of the images comprises:

- (a) determining a first difference image between a first image and a second image; and
- (b) determining a second difference image between the second image and a third image (column 10, lines 8-22, refer to different images).

Regarding claim 14, Lu et al disclose a method as defined in claim 13 further comprising developing an amalgamated image from the first and second difference images (column 24, lines 23-31, second image).

Regarding claim 16, Lu et al disclose a method as defined in claim 12 wherein identifying at least one geometric parameter of the at least one shape comprises identifying a center of a first shape and a center of a second shape (column 14, lines 9-24, the geometric center of the found heads).

Regarding claim 20, Lu et al disclose a method as defined in claim 19 wherein the test comprises at least one of a location test and a size test (column 12, lines 50-59, refer to size).

Regarding claim 23, Lu et al disclose a method as defined in claim 12 wherein, if any symbol does not grow within a predetermined length of time, it is eliminated from the histogram (column 15, line 65 through column 16, line 8, refer to

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

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calculating time).

Regarding claim 24, Lu et al disclose a method of counting people appearing in a digital image comprising: reducing objects appearing in a series of images to one or more blobs; for each individual image in a set of the images of the series of images, representing the one or more blobs in the individual image by one or more symbols in a histogram; and analyzing the symbols appearing in the histogram to count the people in the image (column 8, lines 54-64, counting sensor when people are present).

Regarding claim 31, Lu et al disclose a method as defined in claim 30 wherein the series of amalgamated images are derived from a series of difference images, the series of difference images being derived from a sequence of original images including the digital image (column 12, lines 14-24, sequence of images).

Regarding claim 32, Lu et al disclose a machine readable medium storing machine readable instructions which, when executed, cause a machine to: (a) determine at least one difference image between at least two images; (b) develop at least one shape from the at least one difference image; (c) identify a geometric parameter of the at least one shape; (d) add a symbol having a predetermined size and indicative of the geometric parameter of the at least one shape to a histogram; (e) repeat (a)-(d); and (f) if any symbol in the histogram grows beyond a predetermined threshold, count the symbol as a person (see above claims and column 16, lines 43-59, refer to geometric parameter).

With regard to claims 9, 11-12, 15, 17-19, 21, 25-30 and 33, the arguments analogous to those presented for claims above are applicable.

----- NEW CITATIONS -----

NONE